PROCESSO SELETIVO – TURMA DE 2014
FASE 1 – PROVA DE INGLÊS

NOME: _____

ASSINATURA: _____

Na página anexa, você encontrará um pequeno texto de um livro editado por R.A. Duschl, H.A. Schweingruber e A. W. Shouse (Comittee on Science Learning, Kindergarten Through Eight Grade) do National Research Council of the National Academies dos Estados Unidos, publicado pela National Academy of Sciences em 2007.
Este texto é do Capítulo 2, "Goals for Science Education", e está nas páginas 26 e 27 do livro *Taking Science to School: Learning and Teaching Science in Grades K-8*.
Após a leitura deste texto, responda em português às perguntas apresentadas, com base no que consta no texto. É permitida a consulta a dicionários.

Questão 1

Os autores afirmam que os processos de desenvolvimento das teorias científicas e a forma que estas teorias assumem são diferentes entre os diferentes domínios da ciência, mas que há uma característica primordial que é comum a todas elas. Qual é essa característica?

Questão 2

O que (segundo os autores) deve ser feito quando há conflito entre os dados e teorias ou modelos?

Questão 3

Quais os atributos que devem ser satisfeitos por um modelo (ou uma teoria, ou uma hipótese)?

Questão 4

Quais as características do processo de argumentação e análise que relaciona dados e teorias?

Questão 5

Qual o papel atual do modelo científico clássico?

Questão 6

Quais os aspectos atuais do desenvolvimento e teste de uma teoria?

Questão 7

Quais os aspectos chave da prática científica atual?

Chapter 2 - Goals for Science Education

What is science?

(...)

The process by which scientific theories are developed and the form that those theories take differ from one domain of science to another, but all sciences share certain common features at the core of their problem-solving and inquiry approaches. Chief among these is the attitude that data and evidence hold a primary position in deciding any issue. Thus, when well-established data, from experiment or observation, conflict with a theory or hypothesis, then that idea must be modified or abandoned and other explanations must be sought that can incorporate or take account of the new evidence. This also means that models, theories, and hypotheses are valued to the extent that they make testable (or in principle testable) precise predictions for as yet unmeasured or unobserved effects; provide a coherent conceptual framework that is consistent with a body of facts that are currently known; and offer suggestions of new paths for further study.

A process of argumentation and analysis that relates data and theory is another essential feature of science. This includes evaluation of data quality, modeling, and development of new testable questions from the theory, as well as modifying theories as data dictates the need. Finally, scientists need to be able to examine, review, and evaluate their own knowledge. Holding some parts of a conceptual framework as more or less established and being aware of the ways in which that knowledge may be incomplete are critical scientific practices.

The classic scientific method as taught for many years provides only a very general approximation of the actual working of scientists. The process of theory development and testing is iterative, uses both deductive and inductive logic, and incorporates many tools besides direct experiment. Modeling (both mechanical models and computer simulations) and scenario building (including thought experiments) play an important role in the development of scientific knowledge. The ability to examine one's own knowledge and conceptual frameworks, to evaluate them in relation to new information or competing alternative frameworks, and to alter them by a deliberate and conscious effort are key scientific practices.